

**AMENDMENTS TO THE CLAIMS**

1.-3. (Canceled)

4. (Original) An adaptive motion direction detecting apparatus comprising:

an image input unit for inputting two-dimensional pixel data of an object having coordinate  $k$ ;

a response output unit including response elements having coordinate  $m$  and coordinate  $n$ , said coordinate  $m$  corresponding to one of a plurality of a local areas partly superposed thereon, into which said two-dimensional pixel data are divided, each of said response elements generating a response output  $\eta_{m,n}(t)$  depending on a spatial response function  $S_{m,k}$  and a time response function  $T_n(t)$ , said spatial response function being a Gaussian function centered at said coordinate  $m$ ;

a correlation function calculating unit for calculating spatial and time correlation functions  $\Gamma_{m,n;m',n'}$  between the response outputs  $\eta_{m,n}(t)$  and  $\eta_{m',n'}(t)$ ;

a response output selecting unit for selecting response outputs of said response output unit in accordance with a said spatial and time correlation functions  $\Gamma_{m,n;m',n'}$ ; and

a motion direction detecting unit including detection elements having coordinate  $i$  corresponding to coordinate  $m$ , each of said detection elements detecting a motion direction of said object at coordinate  $i$  in accordance with selected output response output for said coordinate  $i$ .

5.-7. (Canceled)

8. (Original) An adaptive motion direction detecting method comprising the steps of:

inputting two-dimensional pixel data of an object having coordinate  $k$ ;

dividing said two-dimensional data into a plurality of local areas partly superposed thereon, said local areas having spatial coordinate  $m$  and time coordinate  $n$ ;

generating a response output  $\eta_{m,n}(t)$  depending a spatial response function  $S_{m,k}$  and a time response function  $T_n(t)$ , said spatial response function being a Gaussian function centered at said coordinate  $m$ ;

calculating spatial and time correlation functions  $\Gamma_{m,n;m',n'}$  between the response output  $\eta_{m,n}(t)$  and  $\eta_{m',n'}(t)$ ;

selecting response outputs of said response output unit in accordance with said spatial and time correlation functions  $\Gamma_{m,n;m',n'}$ ; and

detecting a motion direction of said object at coordinate  $i$  corresponding to said coordinate  $m$  in accordance with a selected output response output for said coordinate  $i$ .